

I-4 CORRIDOR ATIS MARKETABILITY STUDY



Prepared for
Florida Department of Transportation

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June 2001

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1. INTRODUCTION

The Florida Department of Transportation (FDOT or Department) recently issued an invitation-to-negotiate (ITN) for advanced traveler information services (ATIS) in the Southeast Region of Florida in an effort to implement ATIS through the privatization of the dissemination of information to travelers regarding traffic conditions. As part of its continuing effort to implement the program throughout the state, the Department is investigating other areas around the state that might warrant a similar effort. Specific areas of interest are the Jacksonville Area, the Interstate Four (I-4) Corridor (including Tampa Bay, Orlando, and Daytona areas), and the Southwest Region of Florida.

1.1 Study Area

The I-4 Corridor study area in this market analysis is defined as the thirteen-county metropolitan statistical area (MSA) in the I-4 Corridor of Florida which includes:

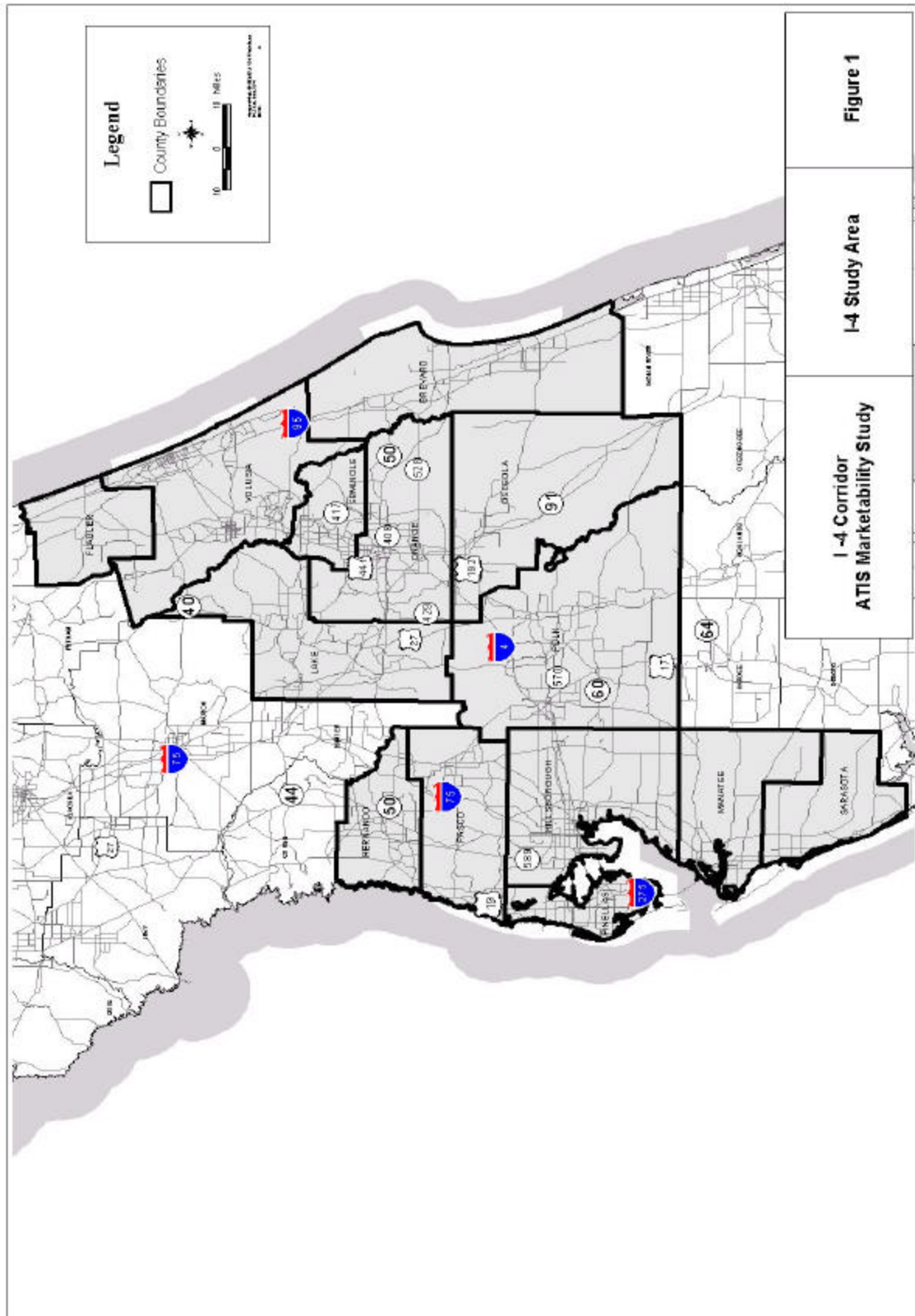
- Sarasota-Bradenton MSA (Sarasota and Manatee Counties);
- Tampa-St. Petersburg-Clearwater MSA (Hernando, Pasco, Pinellas, and Hillsborough Counties);
- Lakeland-Winter Haven MSA (Polk County);
- Orlando MSA (Lake, Orange, Osceola and Seminole County);
- Daytona Beach MSA (Flagler and Volusia Counties); and
- Melbourne-Titusville-Palm Bay MSA (Brevard County).

Figure 1 illustrates the I-4 Corridor ATIS study area.

1.2 Study Structure

This marketability study provides a market analysis/approach for providing ATIS throughout the I-4 Corridor. It also provides a detailed description of the elements necessary for FDOT to reach a Go/No Go decision on proceeding with an ITN for ATIS in the I-4 Corridor. The remainder of this report addresses the following issues:

- What is ATIS?
- The I-4 Corridor Consumer Context
- The ATIS Marketplace
- Basis for Estimates for the I-4 Corridor
- Conclusions and Recommendations



2. What is ATIS?

According to the Strategic Plan for IVHS in the United States, published in May 1992 by ITS America, ATIS is defined as “Advanced Traveler Information Systems (ATIS) acquire, analyze, communicate, and present information to assist surface transportation travelers in moving from a starting location (origin) to their desired destination. The systems provide such assistance in a manner that best satisfies the traveler’s needs for safety, efficiency, and comfort. The travel may involve a single mode of transportation, or it may link multiple modes together during various parts of the trip.”

Architecturally, the central role in ATIS is the information service provider (ISP) subsystem. The information service provider is a user of each of the subsystems that collects transportation system information. This includes the transit management, transit vehicle, traffic management, roadside, and parking management subsystems. The ISP provides the focal point for traveler information to the vehicle, personal information access, and remote traveler support subsystems. In the same way, the public agencies responsible for traffic management can use the information made available through the ISP from vehicle subsystems. In some cases, the private sector service provider may also fund additional surveillance infrastructure to become a primary agent for data collection as well as for data distribution.

3. THE I-4 CORRIDOR CONSUMER CONTEXT

3.1 Scale of the Market for ATIS

Table 1 shows the population growth forecast for all the counties in the corridor between the current year (2000) and 2020. The table confirms that the counties containing Tampa and Orlando, Hillsborough, and Orange counties, respectively, will continue to grow to more than a million people by 2010, followed closely by Pinellas County. Furthermore, surrounding counties will continue to grow at a fast pace. Orlando MSA ranks thirteen in the nation in population growth and 28th in population. Overall, population in the I-4 Corridor counties will grow by about 1.3 times their 2000 levels by 2020. This rapid growth will drastically increase travel demand.

The growth in employment is outpacing population growth rates. With the growth patterns matching population growth patterns, commuting patterns to work may not change drastically in the future. Table 2 illustrates the high growth anticipated for the counties in the I-4 Corridor. All MSAs in the I-4 corridor are expected to achieve more than 30 percent of growth by 2020. However, Orlando MSA is outpacing the rest of the corridor with 61 percent anticipated growth. Orlando MSA ranks fifth in the nation in employment growth, while Sarasota-Manatee MSA ranks tenth. On the other hand, the Tampa-St. Petersburg-Clearwater MSA ranks 69 nationally, albeit a 37 percent growth forecast, but already the area ranks 21st in population. Overall, employment in the I-4 Corridor counties will grow by about 45 percent of their 2000 levels by 2020. Table 2 summarizes this expected growth in employment within the I-4 Corridor.

Table 1
Population Growth Forecasts in the I-4 Corridor (2000 – 2020)

County	2000 Population	2010 Population	2020 Population
Sarasota County	325,957	371,700	418,500
Manatee County	264,002	302,400	348,200
Pinellas County	921,482	955,900	1,009,400
Hernando County	130,802	161,700	194,200
Pasco County	344,765	381,900	434,000
Hillsborough County	998,948	1,124,000	1,270,800
Polk County	483,924	550,000	619,400
Lake County	210,528	264,400	321,700
Orange County	896,344	1,061,600	1,264,400
Osceola County	172,493	215,200	270,500
Seminole County	365,196	436,100	513,000
Flagler County	49,832	66,800	86,900
Volusia County	443,343	496,100	562,000
Brevard County	476,230	564,200	647,300
I-4 Corridor	6,083,846	6,952,000	7,960,300

Source: Unadjusted 2000 Census Data and Florida Statistical Abstract 2000.

Table 2
Employment Growth Forecasts in the I-4 Corridor (1999-2020)

County	1999 Employment	2010 Employment	2020 Employment
Sarasota County	181,810	222,300	259,870
Manatee County	152,690	207,810	257,720
Pinellas County	541,800	618,310	676,700
Hernando County	39,490	51,500	62,920
Pasco County	100,650	128,620	154,660
Hillsborough County	699,310	855,920	1,001,560
Polk County	231,430	273,930	307,240
Lake County	84,420	103,400	116,750
Orange County	710,660	924,520	1,132,080
Osceola County	62,530	87,120	106,940
Seminole County	179,490	252,450	311,720
Flagler County	14,260	18,000	20,140
Volusia County	176,840	208,730	234,600
Brevard County	234,060	265,530	289,310
I-4 Corridor	3,409,440	4,218,140	4,932,210

Source: 2001 Woods & Poole Economics, Inc.

The real per capita income is a measure of the average resident's standard of living and is one of the key variables influencing the amount and frequency of discretionary and recreational travel. In the I-4 Corridor, real per capita income is projected to grow at an average annual rate of about 1.4 percent between 1999 and 2020. Table 3 displays the projected growth in real per capita income shown in constant 1996 dollars for the counties in the I-4 Corridor. There is a notable difference between the income levels among the counties. Sarasota, Pinellas, and Manatee Counties are ranked in the top ten, while Flagler and Osceola Counties rank 36 and 41, respectively, among all Florida counties in real per capita income.

Table 3**Real Per Capita Income Growth Forecasts in the I-4 Corridor (1999-2020)**

County	1999 Income (\$1996)*	2010 Income (\$1996)	2020 Income (\$1996)	Annual Growth Rate**
Sarasota County	\$36,923 (4)	\$45,517 (4)	\$54,173 (2)	1.84%
Manatee County	\$30,318 (9)	\$37,484 (8)	\$44,376 (6)	1.83%
Pinellas County	\$30,456 (8)	\$35,835 (9)	\$40,429 (9)	1.36%
Hernando County	\$21,401 (34)	\$24,735 (33)	\$28,228 (31)	1.33%
Pasco County	\$22,459 (24)	\$26,296 (23)	\$30,014 (23)	1.39%
Hillsborough County	\$25,977 (15)	\$30,190 (14)	\$34,067 (13)	1.30%
Polk County	\$24,994 (26)	\$25,965 (24)	\$29,389 (25)	0.77%
Lake County	\$22,019 (27)	\$25,573 (27)	\$28,966 (29)	1.31%
Orange County	\$25,892 (16)	\$30,022 (16)	\$33,958 (14)	1.30%
Osceola County	\$19,396 (41)	\$22,160 (42)	\$24,709 (41)	1.16%
Seminole County	\$28,322 (11)	\$32,832 (11)	\$37,126 (11)	1.30%
Flagler County	\$21,182 (36)	\$24,533 (35)	\$27,720 (35)	1.29%
Volusia County	\$21,685 (31)	\$25,079 (29)	\$28,361 (30)	1.29%
Brevard County	\$23,485 (21)	\$27,515 (19)	\$31,256 (19)	1.37%

Source: 2001 Woods & Poole Economics, Inc.

Notes: * Income per capita rank is for 1998

** Annual Growth Rate was calculated from 1999-2020

Rank of the county among all 67 counties in Florida - in parenthesis

As a single marketplace for advanced traveler information, the I-4 Corridor total population is expected to grow from about 6.0 million in 2000 to approximately 8.0 million in 2020. Meanwhile, the area's total employment will grow from 3.4 million to 4.9 million in 2020. ***With these demographics, the I-4 Corridor would be the sixth largest market in the nation making Central Florida the largest such market with only limited advanced traveler information systems.***

The scale of the marketplace makes it an attractive opportunity for ISPs, as adequate traveler information can be provided for dissemination. As population, employment, and income levels continue to increase, the scale of the market and ability of consumers to afford traveler information will increase. However, whether or not travelers will utilize this ability to *pay* for better information is uncertain at best.

Recent experience in South Florida and other areas of the country might indicate that ATIS services may need continued funding as “provided services” of the local DOT until some point in the future when better information and a proven track record can meet customer expectations for the fees they are expected to pay. Telematics advances or more detailed and more reliable levels of service are needed in order to guarantee a steady revenue stream. These services levels must far exceed what the consumer now perceives as free information received through broadcast media or the Internet.

3.2. National Research on Consumer Needs and Demands for ATIS

Significant national research has been performed to understand what consumers want from ATIS. The following is section from *Closing the Data Gap: Guidelines for Quality ATIS Data*.

Research of current ATIS users, as well as the general public that are not yet ATIS users has identified four factors that influence ATIS customer demand:

1. ***The regional traffic context***: This includes attributes of the region, such as highway-roadway network and capacity, levels of traffic congestion, and future highway-roadway expansion plans. Prime ATIS markets appear to be highly congested regions that have limited build-out options, constrained alternate route possibilities, and frequent unpredictable traffic events (e.g., weather, crashes). For the I-4 corridor, the area *between* Orlando and Tampa, including Lakeland/Winter Haven, may not specifically meet these criteria, however the growth of the two metropolitan areas separately, combined with the inward growth of traffic between these areas, appears to bring the corridor into this category. This may be considered similar to the manner in which the residential and industrial area along the Washington-Baltimore corridor continues to grow as the limits of the metropolitan area are exceeded.
2. ***The quality of the ATIS services***: This is at least as important as the level of network congestion. Information quality determines whether, how frequently, and with what level of confidence the traveler consults traveler information. Quality determines whether the information will meet customer needs with respect to personal benefit and value.
3. ***The individual trip characteristics***: The trip purpose, the time of the trip in relation to peak congestion periods, trip length, and the particular route or route choices available to

the individual traveler all have a significant effect on whether the individual will consult traffic information. To a limited extent, the availability and convenience of alternative mode choices for a given trip affects use of ATIS. Travel time flexibility, or lack thereof, is another determinant in the choice to consult traffic information.

4. ***The characteristics of the traveler:*** The fourth factor includes values and attitude characteristics of the ATIS user, or potential user. These characteristics are important determinants of user awareness, use patterns, behavioral responses, and valuation of ATIS.

Based upon numerous surveys, focus groups and research, ITS America identified eight consumer market segments that cover approximately 90% of a region's population. The market segments help determine the potential market size for specific ATIS products and services, as well as the features of those services that are related to the data required to provide the service.

ITS America identified the eight segments as:

1. ***Control Seekers:*** Like to plan ahead, desire to be accessible at all times, like using portable information devices, and want to predict travel time accurately.
2. ***Web Heads:*** Most technologically savvy segment, high users of Internet, but low use of portable information devices.
3. ***Low-tech Pre-trip Information Seekers:*** Prefer pre-trip information, and are less interested in new high technology gadgets.
4. ***Wired with Children:*** Younger, higher income, with more children in household, seeks convenience in information acquisition.
5. ***Mellow Techies:*** Little interest in traffic conditions or trip planning, and little concern about being late, but high levels of computer and Internet use.
6. ***Buyers of Value-added services:*** Low comfort with computers and Internet, may prefer customized information services.
7. ***Trendy and Casual:*** Use pagers and cell phones, but express little interest in traffic information or time savings.
8. ***Male Techno-Phobes:*** Less comfortable with technology, less likely to change behavior, less interested in traffic information.

ATIS market segmentation based on attitudes and values related to control, time, travel, and technology successfully identifies much of the current ATIS customer market, differentiating ATIS customers from others with similar demographic characteristics.

Control Seekers dominate the ATIS customer market. These customers consult ATIS to save time, to use their time efficiently, to stay on schedule, and to stay informed. *Control Seekers* use information more intensively than the general population.

Technology has an important and complex role in ATIS. *Web Heads* comprise the second largest group of ATIS customers. However, their allegiance appears linked to the Internet media, and may or may not migrate to other information platforms as the web becomes more mobile.

Individuals in the *Low-tech Pre-trip Information Seekers* market segment had a low acceptance and comfort level with the Internet and web-based information. Nevertheless, this customer segment represents a large portion of the current ATIS customer pool, and can be expected to continue to demand good information services on low-tech media in the future.

Current Context

Drivers' points of reference for all traffic information are their personal experience with both local traffic conditions and radio traffic broadcasts. They generally rate their own experience as a reliable source of traffic information. But based on their experience with unreliable traffic information from the radio, some drivers do not believe that better, personally useful traffic information could exist. Other drivers believe that there's no alternative to traffic congestion and thus little value to ATIS. Therefore, new ATIS services are competing against drivers' personal knowledge of local traffic conditions, traffic broadcasts on the radio, and drivers' underlying belief that there's no benefit ATIS could provide to relieve the situation.

Concurrently, consumer expectations for advanced information services generally are very high. They've been conditioned by the Internet and a computing environment in which information services and electronic devices get faster, better, and cheaper very quickly. In the research and evaluation to date, we see a progression in the expectations and requirements of drivers as they become more experienced ATIS consumers.

Why do travelers use ATIS?

Washington State DOT traffic website (believed to be the heaviest used real-time traffic website) customers provide insight into motivations of use. These motivations are representative of most ATIS users in other regions. The answers to the questions are placed in order of frequency:

Why use the website?

- To assess traffic congestion on their route.
- To judge the effects of incidents on their trip.
- To decide among alternate routes.
- To estimate their trip duration.
- To time their trip departure.

What actions result from the information?

- Change route or time of departure maximizing for a faster trip time
- Change route or time of travel to reduce the stress of driving in congestion, perhaps lengthening trip distance or duration.
- Adjust their expectations, listen to an audiotaped book, make phone calls, adjust appointments, and make alternative arrangements.

What benefits are perceived from use?

- Save time.
- Avoid congestion.
- Reduce stress.
- Avoid unsafe conditions.

Critical features of a traffic-related ATIS service

The U.S. Department of Transportation (USDOT) ITS program fielded qualitative market research in 1996 on various traffic information concepts with drivers in congested regions. While driver opinions were based on their experience of radio broadcast traffic information, their traffic information concerns have proven to be true of all drivers surveyed since. The following is a list of critical features as defined by the market research:

- Accuracy of information.
- Timeliness of information.
- Reliability of information.
- Cost to use.
- Degree of decision guidance and personalization offered.
- Convenience of access and speed.
- Safety of operation.

3.3 Consumer and Market Segmentation

Consumer Market Segments

Based on population, employment, income, median age projections, and other local factors (like tourism and seasonal residents), four of the consumer market segments are likely candidates for deployment of ATIS products and services for the I-4 Corridor:

1. **Control Seekers:** Like to plan ahead, desire to be accessible at all times, like using portable information devices, and want to predict travel time accurately.
2. **Web Heads:** Most technologically savvy segment, high users of Internet, but low use of portable information devices.
3. **Low-tech Pre-trip Information Seekers:** Prefer pre-trip information, and are less interested in new high technology gadgets.
4. **Mellow Techies:** Little interest in traffic conditions or trip planning, and little concern about being late, but high levels of computer and Internet use.

Orlando Metropolitan Area 1996 Market Survey

The District Five Early Deployment Plan included a traveler information systems survey that was conducted in 1996. A telephone survey of Tri-County residents (Orange, Osceola & Seminole) was conducted.

The objective of this survey included:

- Determining the type(s) of travel information important to people who commute to work, and those who work from a home-based business who participate in outside meetings or for other business-related reasons
- Evaluating, as practical, a similar type of informational usage and need for the “casual” traveler. That is, residents who generally travel around the area for non-work related activities.
- Gathering information about trip diaries of commuters; their freeway delay or detour experience under incident conditions;
- Understanding factors which influence detouring to arterial streets or toll roads such as income and age;

- Understanding their willingness to exchange dollars for time; conditions on the alternate routes; and the detour thresholds (minutes of delay on the main route before a driver decides to divert).

The following summarize the major findings of the survey:

- The majority (63%) of respondents have lived in the area more than six years, work full-time (87%) outside their home (90%), and drive to work alone (95%) in their personal vehicle.
- I-4 (23%) and SR 436/Semorán Blvd. (18%) are the most widely used connectors across all Tri-County respondents. Still 18% say they “use back roads and/or side streets” to get to work.
- A perception that there has been a “marked increase” in traffic congestion was noticed by commuters over the past year, particularly in the opinion of Seminole and Osceola County residents. Recent road maintenance and construction in all three counties certainly has an impact on this result.
- Typically, commuters travel at least 9 miles (one way, 64%) to work with 4 out of 10 respondents driving more than 12 miles to work.
- The overall average commute time is 26.4 minutes (median 20.4 minutes). This compares to 21.8 minutes for the state average (1990 Census) and 22.9 minutes for the Orlando MSA.
- The longest commute is among Seminole County residents (30.1 minutes, 20.5 median) who tend to use I-4 and highways US 17-92 and SR 436.
- The DMS messages describing the “type of congestion” (61%) or the estimated delay time (55%) has at least “somewhat” of an influence on the commuter’s decision to take an alternate route if congestion is encountered.
- Radio station traffic reports (51%) are the most important source of traffic conditions. The city’s Metro Traffic reports appear to be of marginal (21% overall) value.
- Significantly more Orange County respondents (58%) find the traffic reports important, over respondents from either Seminole or Osceola County, 45% and 34%, respectively.
- There are mixed indications for the importance for “real time” traffic information: While 13% would find it “extremely important” and another 28% “very important,” 33% rate its availability of “limited importance.”
- Three out of four (73%) respondents have noticed the traffic information signs along the I-4 corridor. Commuters who have noticed the signs find the information displayed useful (70%) and “reasonably accurate” (67%). Just over half (58%) find the traffic information signs to be “timely.” The positive finding is offset by the fact that 15% say the information is not accurate and 23% say it is not timely.
- Significantly more respondents who live in Orange County find the signs useful (76%), accurate (74%), and timely (64%).
- The data estimates that from 40% to 50% of travelers on I-4 would divert to an alternate route if a traffic information sign indicates a delay estimated to be 10-15 minutes long.
- If the commuter hears a radio traffic report indicating that the alternate route is also congested over 40% would stay on I-4 and wait it out even if the delay is expected to be 20+ minutes.
- “When all else fails” the typical traveler relies on a map.

The results of this survey indicate that the Central Florida market is ripe for advanced traveler information systems and the need for traveler information increases with congestion. Since

this survey was conducted, congestion levels have increased significantly along the I-4 corridor further increasing the market demand.

Market Segmentation

In the I-4 Corridor, the markets segments for ATIS can be divided into four basic segments: urban commuters, regional/intercity travelers, tourism, and commerce.

1. **Urban Commuters:** The urban commuter population is growing and highly elastic to congestion levels. As congestion continues to increase throughout Central Florida, urban commuters will seek new sources of traveler information to assist them in their daily commutes. Local traveler information and personalized traveler information are the primary services needed. The information provided should include speeds, congestion, and delays on primary commuting routes.
2. **Regional/Intercity Travelers:** Travelers between the three major metropolitan areas are less sensitive to minor variations in the travel time along the corridor; however, these travelers require major incident and slowdown information, including alternate routes. These drivers are typically less familiar with the transportation network and require route guidance for alternate routing. These travelers are typically business travelers and have a higher sensitivity of time than tourists, but because of the trip length, less sensitivity to localized problems than commuters.
3. **Tourism:** A healthy tourism market is essential for Florida's economy and travelers in this market have unique needs. More than 32 million visitors, or about 43 percent, of Florida's estimated 74.1 million tourists in year 2000 visited the I-4 corridor. The Orlando and Tampa Bay areas are ranked second and third, respectively, out of the seven Florida's vacation regions according to *Visit Florida* (www.FLUSA.com) data. As one market, the I-4 corridor will rank first – far exceeding the Southeast 24.3 million visitors. Many tourists are unfamiliar with the transportation network and, like regional/intercity travelers, are less sensitive to minor variations in travel time. Major incident and slowdown information, combined with route guidance and alternative opportunities, are the primary traveler information needed. Tourists are less likely to divert to alternate routes than other regional/intercity travelers. Tourists also seek additional information that provides commercial opportunities related to theme parks, accommodations, lodging, and food service. This market is also increasingly multimodal with many tourists traveling between major airports, seaports, theme parks, and resorts using private automobile and bus service. Language is also a market differentiation with tourism as opposed to regional/intercity travel. Florida hosts a large number of international tourists who do not speak English as a first language. Safety is also a larger concern in this marketplace.
4. **Trade and Commerce:** I-4 is the hub of Florida's logistics and supply channel industries. More than 40 percent of the distribution facilities in Florida are located along I-4. Markets are increasing to serve growing consumer and tourist population and emerging high-tech industry within Central Florida. The increasing concentration of state and regional distribution activity along I-4 requires a predictable and reliable traffic flow along I-4 to support the industry's shift in business logistic practices to just-in-time manufacturing and complex supply chains/distribution networks. Intermodal linkages are

also important to support Florida's growth in international trade, especially in container movements (Ports of Tampa, Canaveral). Traveler information needed for trade and commerce is similar to intercity travelers. Links to intermodal facilities gate operations is also a possible market for ATIS.

Conclusions

With the level of traffic volumes and congestion in the I-4 Corridor, ATIS can play a major role in the region. The research indicates several factors will be critical to providing ATIS products desired by customers:

- Information must be accurate, reliable, and timely.
- The multiple user segments have different needs for information and will access information through several different media and devices.
- Information on alternate routes is needed, as well as on major routes.
- Information can be valuable even if no alternatives exist – there is value in just knowing what is occurring.

4. The ATIS MARKETPLACE

4.1 Information Service Providers

National Perspective

Nationally, the market for traveler information has evolved and matured in recent years.

Significant trends include:

- The emergence of information service providers (ISPs) who gather information regionally and package the regions together to provide “national” information to other private firms (wholesale) or to consumers directly (retail).
- The explosion of the Internet and wireless communications as methods of providing information to consumers.
- Venture capital underwriting start-up firms in the traveler information business. (Though there has been a reduction in the willingness for venture capitalists to provide for unproven returns, backing is still available for those who work towards strategic alliances with platform providers who will carry the ISPs services.)

I-4 Corridor Perspective

The I-4 Corridor is already benefiting from these trends. In addition to traditional traffic reports on radio and television, multiple firms offer incident reports via websites. Personalized services are also available and enable consumers to establish predefined routes, travel times, and preferred methods for being notified of any abnormal circumstances on the defined routes during the defined times. The following is an outline of current sources available.

Current and Short-Range Data Sources:

1. FDOT/Local Agencies: FDOT and local agencies currently has the following ITS infrastructure:

- a. A freeway management system along 39 miles of I-4 through Orlando including 51 closed-circuit television (CCTV) cameras, inductive loops every one-third miles, and 31 dynamic message signs (DMS). This system is monitored from the regional traffic management center (RTMC).
 - b. Daytona area smart highways (DASH) surveillance and control system around the I-95/I-4 interchange and along International Speedway Boulevard in Daytona. The system is co-monitored and co-controlled by the City of Daytona and FDOT. It is programmed to be hooked up to the RTMC in the near future. The system has a total of ten CCTV cameras and four DMS.
 - c. Twelve CCTV cameras along major arterials in Hillsborough County. Two of the cameras can view portions of I-75 and I-275.
 - d. Three CCTV cameras along I-275 in St. Petersburg g. The cameras are monitored by the City of St. Petersburg.
 - e. FDOT is programmed to expand the I-4 system in District 5, east to the St. Johns Bridge. A total of 19 CCTV cameras and six DMS will be added.
 - f. FDOT is programmed to expand the I-4 system in District 5, west to one mile west of the US 27 interchange. This project will be combined with the I-4 widening to be added 2003/2004.
 - g. A new system of CCTV cameras will be installed to monitor the I-95/SR 528 interchange. The system will be monitored from the RTMC. A total of 12 CCTV cameras and six DMS will be added.
 - h. FDOT District 7 is programmed to install a new system of CCTV cameras along the Sunshine Skyway Bridge, which will be monitored from the District 7 offices and Florida Highway Patrol.
 - i. FDOT District 7 is planning a full freeway management system along all interstates in the Tampa Bay area. The system is in the planning stages and is not yet programmed or funded.
 - j. FDOT District 1 operates a Road-Rangers program along its portion of I-4.
 - k. FDOT District 7 operates a Road Rangers program along its portions of I-275 and I-4 covering about 50 miles, The District also operates a towing service along I-4 and I-275 construction zones
 - l. FDOT District 5 operates a service patrol service along portions of I-4 and plans to expand the limits of the service.
 - m. The Turnpike District operates nine Highway Advisory Radio (HAR) stations and has 20 Dynamic Message Signs (DMS) under construction.
2. Private information service providers (ISPs): Several private information service providers operate in the Tampa Bay area and the Orlando area in the I-4 corridor. Private ISPs collect traveler information through the following means:
 - a. Helicopter and fixed wing aircrafts;
 - b. Police, Florida Highway Patrol (FHP) scanners;
 - c. One provider has an agreement with courier services, in which the ISP provides two-way Nextel phones to truck drivers who call in with incident reports or verify reports provided by others;
 - d. Established relationships with transit agencies to exchange information;
 - e. ISPs own a fleet of mobile units that drives major routes (mainly along Tampa Bay interstates) during peak hours and call-in traffic conditions;

- f. One provider has five CCTV cameras throughout the Tampa Bay area and is in the process of signing agreement with Hillsborough County to get direct access to the County's twelve CCTV cameras;
- g. Cell phone calls from drivers (usually verified by calling a local business in a customized database in the vicinity of the site);
- h. One provider has enhanced access to the Orlando system where it can monitor all cameras simultaneously. Other providers can only access one camera at a time;
- i. Download incident reports from FHP hyperlink;
- j. Construction data provided by FDOT and local agencies; and
- k. One ISP has a contract with FDOT to operate the Orlando RTMC.

Current and Short-Range Data Dissemination:

1. FDOT: FDOT distributes the data it collects by providing:
 - a. Highway advisory radio (HAR) services for major construction projects;
 - b. Construction and lane closure data to media services;
 - c. Customized I-4 websites in the Orlando area convey speed and delay data;
 - d. Incident and delay information through the dynamic message signs (DMS) associated with the Orlando, Daytona, and St. Petersburg systems; and
 - e. Travel information on major incidents, construction projects, historic volumes, and emergency operations through the FDOT central Internet website (www.dot.state.fl.us/traveler.htm).
 - f. The TIRN (Traveler Information Radio Network) is operated as a public/private partnership between FDOT and TIRN, Inc. It provides a 10-minute loop of commercial advertisement with one minute for FDOT to provide traffic condition and other traveler information.
2. Private information service providers (ISP): The ISP distribute incident and construction data through the following channels by providing:
 - a. Information to the general public through radio and TV channels,
 - b. Packages and offering incident and construction reports via customized websites for both Tampa Bay and Orlando areas; and
 - c. Incident reports offered by multiple firms via websites, including:
 - *Traffic Station* – Tampa and Orlando;
 - *MapQuest* – Tampa and Orlando (using data collected by Westwood One/Metro Networks);
 - *MapBlast* - Tampa and Orlando (using data collected by Trafficstation); and
 - *Traffic.com* – Tampa (started in the last week of April 2001).

There are numerous other local web sites where an ISP provides traffic information on a co-branded section of a web site (example: Etak provides maps and data to the Orlando Sentinel's Traffic page).
3. Personalized services are also available. Services, such as the following, enable consumers to establish predefined routes, travel times, and preferred methods for

being notified of any abnormal circumstances on the defined routes during the defined times:

- a. *Traffic Station* offers “*TeleWarning*” for \$6/month. Subscribers in roughly 30 cities in North America, including Orlando and Tampa, can create a profile of routes and times traveled and how they would like to be informed (e.g., phone, page, e-mail) when abnormal situations in Tampa and Orlando occur.
- b. *Etak*, using Westwood One data, offers “*EtakTraffic*” for Palm VII device users for \$5/month. The service is similar to *TeleWarning*.

In summary, the traveler information collected and distributed to consumers in the I-4 Corridor are primarily incident and construction/event information. Experience suggests that services, service providers, and the types of devices that are used are constantly evolving. This continuing challenge must be accepted as business-as-usual in the traveler information business. An important element to consider is that private services have focused on incident-based information, provided as traveler information in the I-4 Corridor today. However, several areas that are lacking in these services must be improved before they can meet the vision of “advanced” services, needing enhancements such as:

- Much better incident data;
- Travel time data and/or average speed data on major routes;
- Transit data; and
- More specific special event data.

Currently, *Traffic.com* is conducting discussions with Hillsborough Expressway Authority and FDOT District 7 to install RTMS devices in the right-of-way to provide advanced traveler information to Tampa Bay, including real time incident, average speed, delay, and travel time information.

4.2 511 Services

In July 2000, the Federal Communications Commission (FCC) designated the abbreviated dialing code 511 for traveler information services. The FCC ruling leaves nearly all implementation issues and schedules to state and local agencies as well as telecommunications carriers. There are no federal requirements and no mandated method to fund 511; however, the USDOT and FCC anticipate a nationwide deployment. In 2005, the FCC will review progress in the implementation of 511.

While the flexibility provided in the FCC ruling is highly desirable, it also presents a challenge. There is a great deal of interest in using 511 throughout the U.S. It is expected that there will be multiple requests for 511, at least in some parts of the U.S., from DOTs, transit agencies, regional and local transportation agencies, as well as, private service providers who will offer to implement 511 services for some type of compensation. If not thoughtfully planned, 511 services could devolve into an inconsistent set of services, widely varying in type, quality, and cost. Mindful of both the opportunity and challenge 511 presents, the American Association of State Highway and Transportation Officials (AASHTO), in conjunction with many other organizations including the American Public Transit Association (APTA), and the Intelligent Transportation Society of America (ITS America), with support from the USDOT, has

established a 511 Deployment Coordination Program. The goal of the 511 Deployment Coordination Program is “the timely establishment of a national 511 traveler information service that is sustainable and provides value to users.” The intent is to implement 511 nationally, using a bottom up approach facilitated by information sharing and a cooperative dialogue through the national associations represented on the Policy Committee, the governing body of the program.

4.3 Issues for the I-4 Corridor ATIS

Regardless of the model utilized, the following questions will need to be answered in partnering with an information service provider to disseminate traveler information:

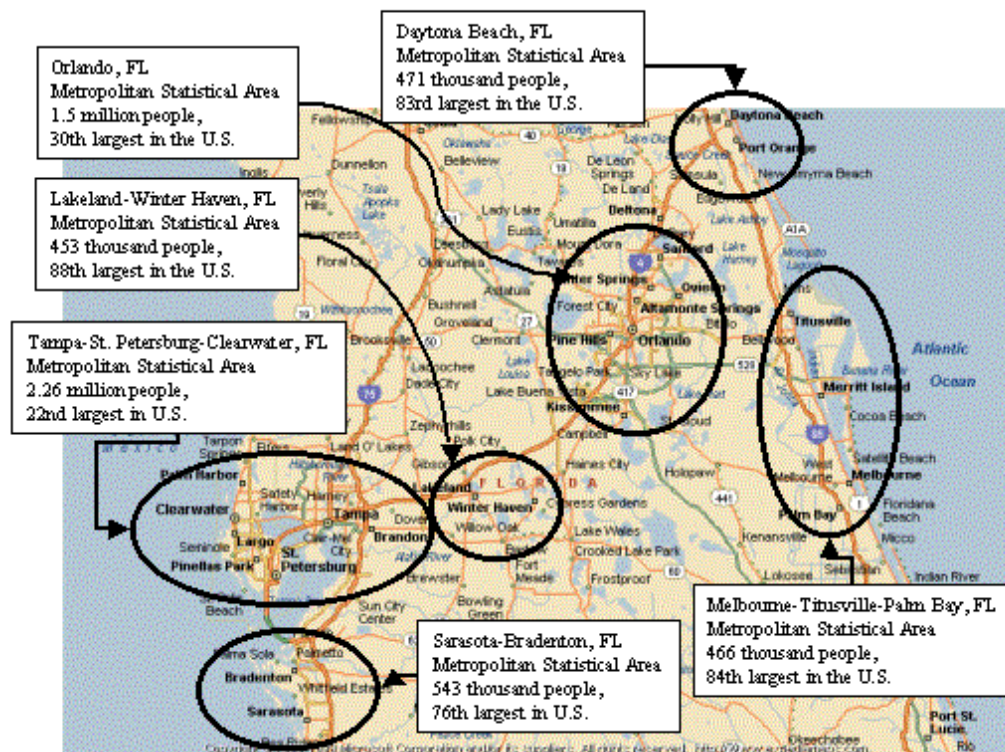
- What is the market potential for advanced traveler information systems (ATIS)?
- Is the I-4 Corridor one market, or two?
- What are the potential sources of revenue generation and how will the revenue be shared?
- What will be the FDOT’s role and responsibilities with data disseminators?
- What is the impact of information sharing policies and procedures on the FDOT?
- What types of data will be made available to data disseminators?
- Will advertising be allowed in conjunction with dissemination?
- How will the traveler information be marketed?
- What quality control and performance criteria will be established for data disseminators?

4.3.1 What is the market potential for advanced traveler information systems (ATIS)?

Each geographic area is reviewed by each ISP in order to assess the potential to deliver revenue-generating services to wholesale or private customers. This review includes not just the level of effort required to provide basic services such as data gathering, data management and data dissemination costs, but also the potential customer base and product requirements in order to become profitable.

The I-4 Corridor has several systems in place. Some systems are programmed for expansion in the next fiscal year and the whole corridor is planned to be covered. This will help reduce the data gathering, data management and data dissemination costs.

With Nearly 5.7 Million People
Central Florida is Top 10 in U.S.!



4.3.2. Is the I-4 Corridor one market or two?

The Orlando MSA ranks fourteen in the nation in population growth and 28th in population. Tampa-St. Petersburg-Clearwater MSA ranks 117 nationally in growth, but the area ranks 21st in population. In between, Lakeland-Winter Haven MSA ranks 111th in population growth, and 84th in population. Overall, the population in the I-4 Corridor counties will grow by about 1.3 times their 2000 levels by 2020. Table 4 shows the US Census Bureau Statistics for 2000 as compared to 1990.

Table 4

US Census Figures For Population Growth 1990-2000

1990 Rank	2000 Rank	Area Name	Census Population		Change, 1990 to 2000	
			April 1, 2000	April 1, 1990	Number	Percent
20	21	Tampa--St. Petersburg--Clearwater, FL MSA	2,395,997	2,067,959	328,038	15.9%
32	28	Orlando, FL MSA	1,644,561	1,224,852	419,709	34.3%
87	84	Lakeland--Winter Haven, FL MSA	483,924	405,382	78,542	19.4%

ISPs were asked whether the I-4 corridor could be viewed as a single market or whether the Tampa and Orlando areas would be better separated for revenue potential. The question did not elicit a firm answer, yet the general consensus is that a combined market approach would be beneficial when it comes to advertising and in-vehicle applications (where a driver may not be as familiar with one area versus another).

The opportunity to combine the areas in between Orlando and Tampa is viewed as a positive opportunity, albeit a more difficult one when it comes to data gathering. In the estimate of one ISP “The I-4 corridor presents [an excellent] potential for commercialization. This geographic area incorporates two major markets, Tampa and Orlando, that present considerable opportunities in terms of broadcast advertising, consumer in-vehicle traffic information (tourism) and commercial in-vehicle (strong East/West corridor).”

4.3.3 What are the potential sources of revenue generation and how will the revenue be shared?

The current effort to disseminate traveler information in the I-4 Corridor to specific client through password protected Internet site, for example, can be expanded to the general public and implemented through a public/private partnership. Some cost of information dissemination may be recovered through advertising and/or charging users a fixed fee per month. Revenue opportunities are available through advertising and fee-based services.

The following media may be available for revenue generation:

- *511 Telephone Services:* User-initiated services are possible through this dedicated traveler information number established by the FCC for interactive voice responsive telephone systems. Advertisement or service charges may be used for revenue generation.
- *Web Services:* The FDOT currently provides a website with traveler and weather information for the I-4 corridor. However, private opportunities would also exist. These private websites could generate revenue through advertisements or by providing “co-branded” services to other websites where a fee for information is charged to the site owner (best examples are local newspaper or radio/TV Websites).
- *Personalized Services for Fee:* Personalized traveler information could be provided based on a fee structure to be determined. Examples of these services would include wireless Internet messages to cellular/PCS phones or in-vehicle navigation systems. Services could be on a subscription basis, or included in bundled services. A revenue sharing policy agreement is needed between the Department and any ISP that may collect revenue as a result of traveler information provided by the Department. Because of the public benefit in providing traveler information, the Department may decide not to require revenue sharing for any ISP. If revenue sharing is implemented, this revenue should be dedicated to supporting the costs of collecting the data or offsetting project costs for other ITS components and operations. Revenue sharing is probably not feasible until advanced systems are in place and the ISP is profitable.

- It should be noted that to date, the revenue generated from advertising or re-selling of services has been limited at best. With the understanding that there is still the potential for an “up-sell” of services, this revenue stream will likely be limited in the near term.
- Examples:
 - In the ARTIMIS ATIS implementation in greater Cincinnati, the Kentucky Transportation Cabinet did not have in mind to receive in-kind revenue from the sale of services by the operators of the system. Indeed, though revenue sharing was contracted from the start of the project in 1995, to date KYTC has received only \$33,440 in shared revenue. Much of this revenue went directly back into the cost of moving from a temporary operations center to the new ARTMIS center in 1998/9.
 - By contrast, the SmarTraveler service in Boston was designed to have revenue sharing based on advertising sales and the sale of additional services (broadcast radio, television, text-paging and others). From 1993 through 1999 the revenue shared (once service provision and labor costs were netted out), was less than \$100. The current version of the operating contract for SmarTraveler is a “cost plus” contract with no shared revenue assumed.
- As noted above, the market is constantly in flux and new sources or alliances for generating revenue are always on the horizon.

4.3.4 What will be the Department’s role and responsibilities with data disseminators?

The Department’s responsibilities to data disseminators should be to support the provision of data that is readily available, using existing information and surveillance infrastructure. Where new data is requested by the data disseminators, the costs of generating this data may be shared between the disseminator and the Department. It is likely that these requests will be limited; however, it is recommended that the data disseminators be consulted when the department is considering deploying new infrastructure, as they are very familiar with usage patterns and needs for information, or “holes” in the system.

Because of the public benefit of providing traveler information, the Department will need to balance this benefit with any revenue derived from the data. It is recommended that if data is provided to a disseminator who supplements this data with other sources (such as probe data) that data should be made available to the Department in turn. Requests by a data disseminator to install surveillance equipment in the Department’s right-of-way will be addressed on a case-by-case basis, but is generally discouraged as site permitting and repeated access for maintenance to a site may become time consuming and costly due to legal and safety reasons (such as requiring police details to protect maintenance workers).

4.3.5 What is the impact of information sharing policies and procedures on the Department?

A general policy statement is needed to guide the Districts in the procedures and limitations for information sharing. Under Florida’s “Sunshine Laws” most data and information developed by the Department is public information. However, many of the images involved in video surveillance or data collected using probe vehicles may have privacy limitations that will need to

be explored. Additionally, a policy statement is needed with regard to public safety, public safety officers and emergency respondents in order to insure their personal safety and privacy, as well as that of the public.

4.3.6 What types of data will be made available to data disseminators?

Most data and information developed by the Department is public information. However, many of the images involved in video surveillance or data collected using probe vehicles may have privacy limitations that will need to be explored.

4.3.7 Will advertising be allowed in conjunction with dissemination?

A statewide policy statement is needed by the Department to define the possibilities and limitations of advertisements in conjunction with data dissemination and traveler information. Revenue from advertising may help diminish the cost of providing ATIS services, but strict guidelines must be imposed with regard to length of messages, and when/where they should be placed. Example: For an IVR service, a 30 second advertisement at the beginning of a traffic message may be too lengthy and discourage users of the system, a 10 second message might be more appropriate with a longer message following. Other issues might include: Would the Department allow for music or sound effects in these advertisements, or would they be voice only; Would there be a limitation on the type of services offered in these advertisements; etc.

For HAR systems, advertisements provide a different level of concern, one similar to that of radio broadcasters. The Department's Highway Advisory Radio (HAR) developed for the Turnpike District can be used as a model for statewide application. The current HAR system does not allow for advertisement.

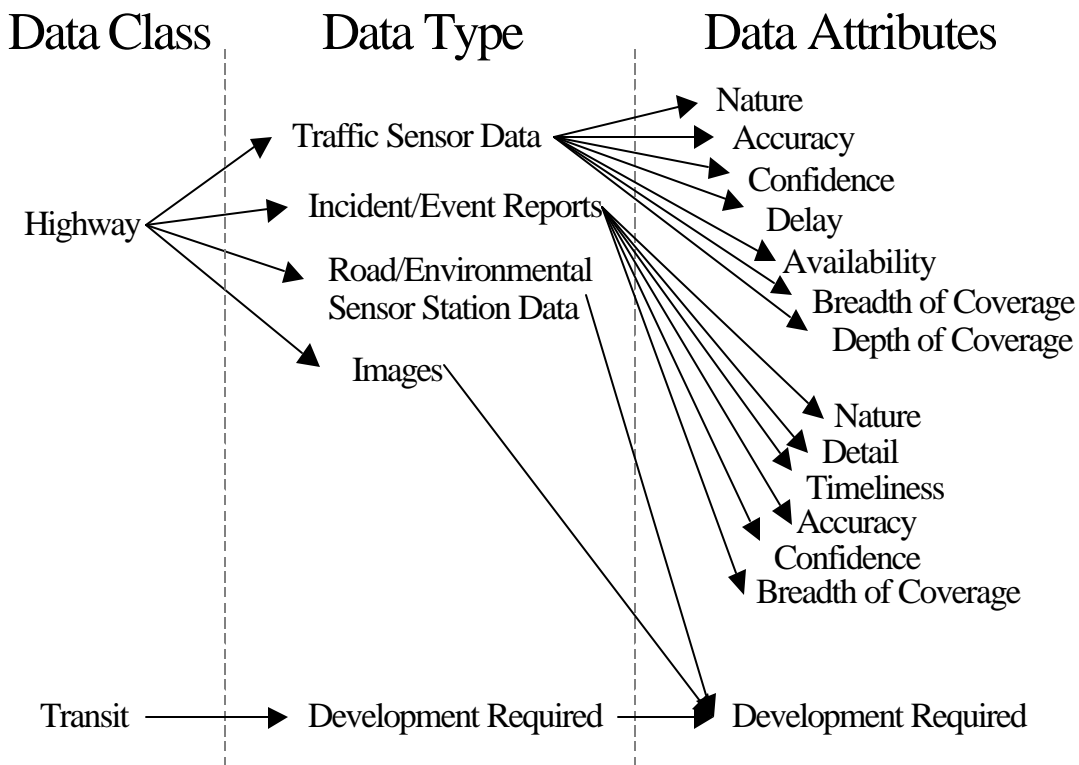
4.3.8 How will the traveler information be marketed?

All traveler information in Florida will be marketed under the SunGuide brand name. This brand was developed initially for the South Florida ATIS in conjunction with the ICS program. The SunGuide brand name is already being used by District 2. A policy statement is needed as to whether co-branding of a service (to include the SunGuide name or not) will be allowed in order to increase the potential revenue of a service and thus any shared revenue.

4.3.9 What quality control and performance criteria will be established for data disseminators?

In August 2000, ITS America published "Closing the Data Gap: Guidelines for Quality ATIS Data." The guidelines were intended to define what data is needed to support ATIS services desired by the public. Generated by the ATIS Committee of ITS America, public agencies, information service providers and synthesized consumer research contributed to establish these needs as shown in Figure 2.

Figure 2
Model for Data Attributes from ITS America's ATIS Guidelines



Four types of real-time traffic data have been identified for quality ATIS services:

1. Traffic Sensor Data
2. Incident/Event Reports
3. Images
4. Road/Environmental Sensor Station Data

For the traffic sensor data and incident/event reports, consensus has formed regarding the attributes used to define the data type as well as the desired quality levels. The guidelines offer a baseline quality level, “good,” and enhanced quality levels “better” and “best.” If a data collection system meets the “good” quality level for all attributes, then the system is capable of supporting the envisioned ATIS products and services. Exceeding quality levels beyond good improves the data available and should improve the quality of the services that can be offered in the region.

The recommended quality levels for the I-4 Corridor are based on the good levels, or above, adapted as appropriate from the ITS America standards as follows:¹

Data Type: Traffic Sensor Data

Attributes and Quality Levels:

- Nature: Limited Access Highways – Aggregated Point Data Principal Arterials – Aggregated Section Data
- Accuracy: < 15% error: Confidence: Qualitative measure of suspicious data communicated along with the data
- Delay: < 5 minutes
- Availability: > 95% availability
- Breadth of Coverage: Limited Access Highways – Major Roadways Principal Arterials – Major Roadways
- Depth of Coverage: Limited Access Highways – Between Major Interchanges Principal Arterials – Between Major Arterials/Limited Access Highways

Data Type: Incident/Event Reports

Attributes and Quality Levels:

- Nature: Crashes, breakdowns, or other unplanned vehicle stoppages; planned or emergency roadway construction or maintenance; and other natural disasters.
- Detail: Reason, Location, Severity, Time
- Timeliness: < 5 minutes (for detection and verification stages), < 10 minutes (total)
- Accuracy: < 15% error

¹ Descriptions of the Images and Road/Environmental Sensor Station Data in the ITS America Guidelines contain possible attributes, but no attempt is made at present to define quality levels for these data types. Version 1.0 of the guidelines recommend including attributes and quality levels as industry consensus emerges. Where possible, requirements were identified and if standards available they were used. Where not available, initial recommendations are provided for a foundation in developing criteria for deployment of ATIS in the I-4 corridor.

- Confidence: Verified non-visual (the operator entering the information can not visually confirm).
- Breadth of Coverage: Limited Access Highways – All Roadways
Principal Arterials – Major Roadways

Data Type: Images

Possible Attributes:

- Breadth of Coverage: All limited access roadways and major arterials.
- Depth of Coverage: All interchanges, major signalized intersections.
- Resolution: To be determined, but suitable for web-based viewing. Should evaluate statewide standards for 30 frames per second IP addressable cameras.
- Refresh Rate: To be determined, but suitable for web-based viewing.

Data Type: Road/Environmental Sensor Station Data

Possible Attributes:

- Nature: Roadway weather information stations focused on rainfall, visibility and wind conditions. Able to detect visibility problems such as fog and smoke. Able to determine when wind conditions are unsafe > 70 mph for hurricane evacuation conditions.
- Breadth of Coverage: Along I-4, at most, every 30 miles apart (based on Canadian standard) and on major structures such as the Howard Frankland Bridge and the Sunshine Skyway Bridge on (I-275) and St. Johns River Bridge (I-4).
- Timeliness: < 5 minutes (for detection and verification stages),
< 10 minutes (total)

In addition to these guidelines for data gathering and throughput, there needs to be an established level of service for each dissemination product required by FDOT (telephone, website, etc.).

Such requirements should include, but are not limited to:

- Telephone response time (number of rings before pickup)
- Telephone availability (number of calls handled before a busy signal)
- Telephone cost options (caller pays local, caller pays toll, caller pays fee, toll-free call)
- Website response time
- Website response volume (number of concurrent connections)
- Etc.

5. BASIS FOR ESTIMATES FOR THE I-4 CORRIDOR

The FDOT's cost of providing ATIS services in the I-4 corridor area should be based on the following elements and understandings.

5.1 Type of Service Required

The Department desire is to have a 511 contractor plus a real-time traffic information website to disseminate the traveler information.

5.2 Roadway Coverage

Not all roadways in the I-4 corridor will be covered at the same level due to lack of infrastructure. To insure a guaranteed coverage of essential roads in the I-4 corridor the following list is established to identify two required levels of roadway coverage: Essential Coverage and Desired Coverage.

Essential Coverage illustrates roadways or areas where a traveler will always be able to retrieve information be it incident information, or information that a particular roadway or area is moving as expected for that time of day.

Desired Coverage illustrates areas where a traveler would be able to retrieve information on current conditions should there be an incident present, but where detailed information on "normal" travel flow might not be as complete (due to a lack of resources in the area).

In this manner, the expectation of a traveler will be the ability to retrieve information on the most "important" roadways or areas at all times, and the knowledge that incidents or significant delays in other areas will also be included when necessary or available. It also defines a base level of service for an ISP, wherein they *must* provide information for areas of Essential Coverage. One would never want a user to find no information available in one of these areas.

1. Essential (or Guaranteed) coverage is required for the following roadways:
 - a. I-4 (from I-275 interchange to I-95 interchange)
 - b. I-95 through District 5
 - c. I-75 (from two miles south of, to two miles north of the I-75/I-275 southern interchange; from one mile south of I-75/Toll 618 interchange to two miles north of the I-75/I-275 northern interchange)
 - d. I-275 (from I-275/I-75 southern interchange to I-275/I-75 northern interchange)
 - e. Toll 589 (Veterans Expressway/Suncoast Parkway) from SR 60 to SR 54
 - f. Courtney Campbell Causeway(SR 60) from McMullen Booth to I-275
 - g. Gandy Bridge from I-275 to Toll 618
 - h. Toll 618 (Leroy Selmon Expressway) from Gandy Boulevard to I-75
 - i. Florida's Turnpike from SR 60 interchange to I-75
 - j. SR 528 (The Bee Line Expressway) from I-4 to I-95
 - k. SR 408 (Holland Expressway) from Florida's Turnpike to SR 50
 - l. SR 429 (Western Beltway) from Florida's Turnpike to US 441
 - m. SR 417 (Central Florida Greenway) from I-4 in Kissimmee to I-4 in Lake Mary

2. Desired coverage for the following roadways:

- a. Remaining portions of I-75 in the study (Hillsborough, Manatee, and Sarasota Counties)
- b. Toll 589 (Suncoast Parkway) from SR 54 to US 98
- c. SR 580 (Dale Mabry Avenue) from I-275 to Toll 589 (Veterans Expressway)
- d. Toll 570 (Polk Parkway)
- e. US 19 from Gandy Boulevard in Pinellas County to US 98 in Citrus County
- f. SR 693 from SR 694 to US 19
- g. SR 694 (Gandy Boulevard) from SR 693 to I-275
- h. SR 688 (Ulmerton Road) from Gulf Boulevard to I-275
- i. SR 60 from Clearwater Beach to CR 611 (McMullen Booth Road) and from I-275 to I-75
- j. US 41 from Sarasota/Charlotte County line to I-275
- k. US 192 from US 27 to Florida's Turnpike interchange
- l. US 27 from I-4 to SR 50
- m. SR 50 from US 27 to SR 5
- n. SR 436 (Semoran Boulevard) within Orange County
- o. US 441 (Orange Blossom Trail) from US 192 to SR 429
- p. US 92 (International Speedway Boulevard) from I-95 to SR A1A
- q. McMullen Booth Road from Park Boulevard to Pasco County Line

Figure 3 identifies the location and limits of each of the essential and desired roadways included in the coverage area.

5.3 Data Collection

The Department is responsible for supplying all available data (non exclusive). The contractor is to supplement the data where needed. However, the ISP is responsible for providing whatever interface is required in order to automatically import FDOT data into the ISPs own database.

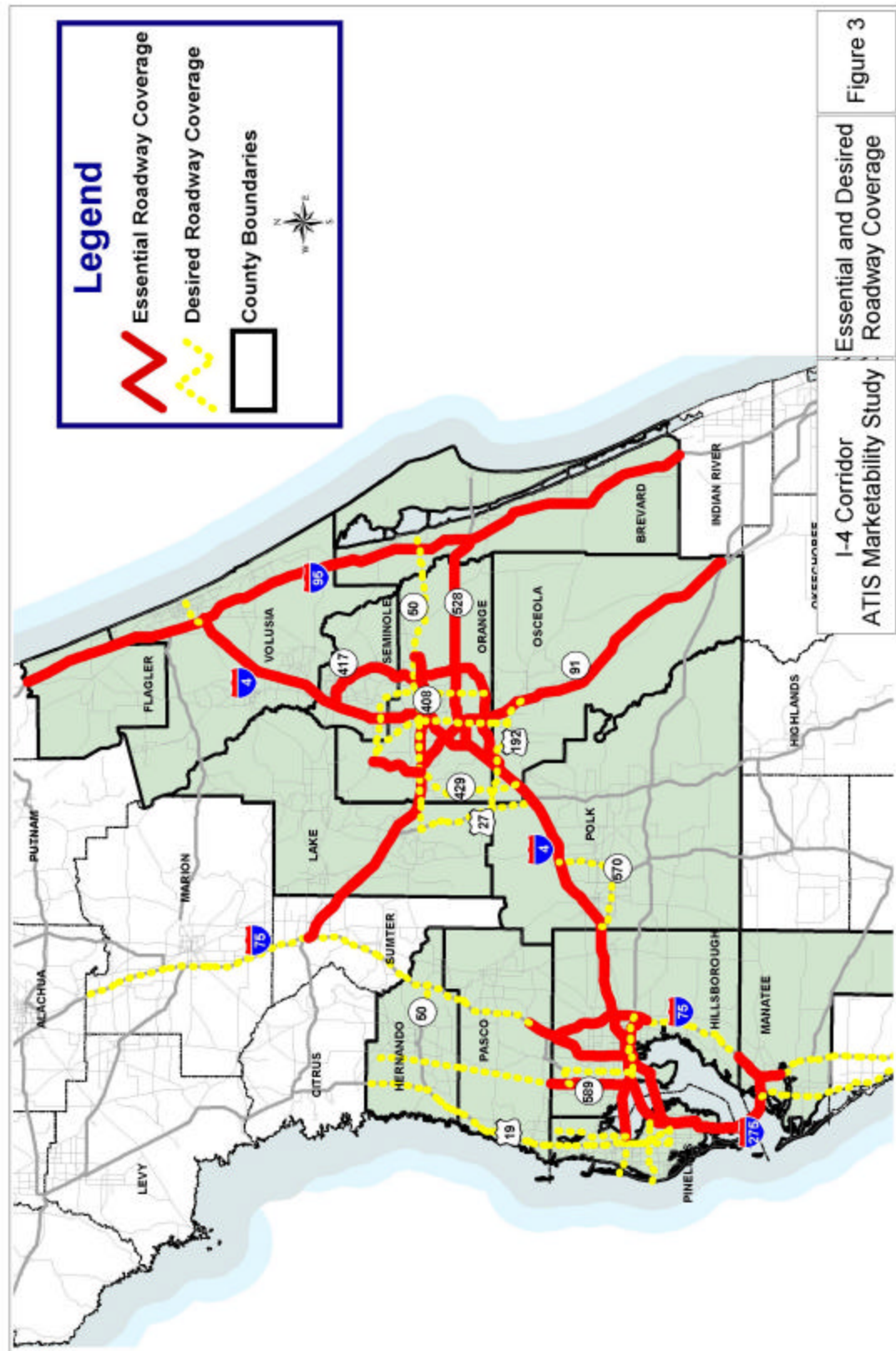
5.4 Start of Operations

The target start date for ATIS services should be around the end of 2001. Existing infrastructure and the programmed expansion of the I-4 system in Orlando should be assumed the baseline for the service.

5.5 Florida ISP Information Summary

Potential ISPs for Florida ATIS programs relating to possible business models:

- The general response from the ISPs is that the revenue sharing model does not work, and in some cases, ISPs have stated that they are not interested in pursuing a revenue sharing contract model. The belief is that there is value to the higher quality information that ATIS services can provide. Yet those paying for the services, the advertisers who are supporting broadcast reports and who might support an advertising based model, are not as interested in



delivering quality information as they are getting their advertising messages out. As for personalized services and other fee based wholesale services, the feeling is that the market is growing, especially with the onset of in-vehicle Telematics, but it is not so mature as to eliminate the need for public funding and provide it's own self-sustaining revenue stream.

- It is the feeling of a number of ISPs that FDOT should fund a basic level of service, and that this funding would include the cost of all data gathering and dissemination media to the public. This basic level of service could include a telephone service (511), Website or other base level services. [Note: No assumption is made that 511 be “free of charge,” i.e. whether or not there is a cost beyond the cost of a local or toll call.]
- A number of ISPs extend this funding requirement to include, the provision of space in an FDOT supported facility. The message is that the best information will come from FDOT and sharing the FDOT space is necessary to providing a competent level of service. Additionally, the cost of a stand-alone facility will likely remove at least one or more ISPs from the process as they have determined that setting up their own infrastructure is not financially viable. Other ISPs, however, have stated that they would consider providing services from within their own existing infrastructure or partnering with others for the use of their physical space.
- It is also assumed that some level of remuneration (profit) be offered in the form of a “cost plus” agreement with FDOT. However there was no mention of the term of this level of contract and one could assume that a sliding scale agreement could be reached based on revenue garnered from the increased level of information provided through FDOT resources.
- The ISPs displayed a desire for a better understanding of the level of service to be provided, and request for increases should that level of service change. To use 511 as the example; If a service were funded to provide for up to 3000 calls per hour, and the service proved successful to the point where additional telephone lines were required to increase the availability to 5000 calls per hour, the ISPs interviewed believe that this increase in cost would be borne by FDOT in its desire for uninterrupted service to the public.
- With regard to private revenue, the overall feeling is that the cost for re-packaging of data for private services would be borne by the ISPs. Any revenue garnered from these services *might* be shared with FDOT as funding to upgrade data services, (to “better the product”). This points out an important fact: The responses indicated that the ISPs are willing to share revenue based on additional sales or profit garnered by their additional capabilities or ties to the DOT information. However they are not willing to make this sharing the primary source of revenue for offering services in the name of the DOT.
- It is understood that other ISPs would be allowed to gain access to the public sector data, and as long as the other ISPs are required to fund their own access, then this is not problematic. However, as FDOT will likely request that data privately gathered by the funded ISP be shared back with FDOT, the ISP will ask that this data is *not* shared back with the other ISPs. These other ISPs may in fact be competitors in certain platforms of service offered to the public. During the ITN phase, FDOT may wish to further define this possibility and determine if a delay can be imposed on sharing back privately gathered data in order to satisfy this request.

5.6 Proposed Business Model

Based on the above information, the following business model is recommended for the I-4 Corridor:

- Make public agency data available for free to all ISPs under license agreement from a single source location in each market. The DOT would provide access to a raw data feed from a single facility or drop site in a market area. ISPs would then be responsible for their own connection and interface with the raw data. The elements of the license agreement to said data would include:
 - Usage terms and restrictions
 - Specified data (e.g., sensor data, video) to be provided
 - Roles of both parties
 - Quality of data to be provided - defining for the ISP the source and substance of the data and it's reliability (i.e. level of confidence);
 - Quality of services to be provided – defining for the ISP any requirements for use of the provided data e.g. use within a certain time period
 - Rules associated with retention of data
 - Acknowledgements and representations
 - Duration of agreement (recommend short agreements initially, 1-2 years)
- FDOT supports a website (could be part of statewide website), 511 and roadside information (as desired, DMS and HAR); leaves all other services to others. In this regard, FDOT must agree to what level it will fund operations for 511 and other services. Does this funding include the cost of telephone lines and service, or does it also include the cost of operations personnel or additional data sources, and to what limit.
- Franchise/contract 511 services and possibly a web site for the best deal (use an Invitation to Negotiate).
- Also FDOT should note, either in the franchise agreement for 511, or as a stand-alone agreement, that *all* services that contain data from FDOT be “synchronous,” to assure a single message is being delivered to the public. In other words, information that appears on the Website should be the same or highly similar to that which is provided through a 511 telephone service.
- Do not seek return revenue from information service providers in the near-term (review as part of license agreement renewal). Perhaps use a sliding scale, noting levels of increased business due to FDOT information or “name association.”
- FDOT and other agencies will continue to expand their data collection infrastructure to meet the data needs.
- FDOT should partner with other major transportation operations in the region for ITN, particularly the Tampa Hillsborough Expressway Authority (THEA) and the Orlando Orange County Expressway Authority (OOCEA).

This proposed model is largely based on the private competitive operations business model identified by ITS America. However, the 511 service element would be franchised. The reasons for this are:

- Only one 511 service can be operational in any given area. The approach of franchising to a single service operator in the I-4 corridor minimizes potential for service confusion and leverages significant market opportunity the entire corridor provides.
- Given uneven data collection throughout the corridor, a franchise could provide supplemental data collection necessary to operate a satisfactory phone service. This data collection could in turn be provided to public agencies and, depending on the franchise agreement, other service providers.

5.7 Estimated Project Cost

Preliminary estimates were developed for deploying and operating ATIS services in the I-4 Corridor market. A number of general assumptions are made, with specific notations included. These are very basic costs, and the addition of functions and specific system requirements will likely drive these costs up. Additionally, an ISP normally assumes many of these costs up front, with funding repaying the costs based on milestone accomplishments. Actual estimates from ISPs will likely differ based on the requirements in the Invitation to Negotiate. Example: In the event that FDOT desires to “own” the hardware and software once the facility is operating (so that the operations portion may be re-bid at some point), then the hardware/software costs shown might change to the “actual” costs as FDOT may purchase the systems outright. For the I-4 corridor, it is assumed that aircraft coverage will be necessary as the geographic area is large. Additionally, it is assumed that the ISP will be required to add some measure of additional video surveillance as well as mobile unit coverage. However, no cost has been assumed for payment of radio system fees or monthly cellular phone charges (beyond those of the actual staff).

Internet access charges have been kept to a minimum, with the assumption that the ISP will provide their own hosting facility for a Web site and that the connection to the host server might in fact be at a different location (i.e. the data files are exported to a central facility for serving through the Web).

The IVR-telephone costs noted include only the line charges and make NO assumption as to the cost of a 511 call. In fact, the assumption is that the cost of the call will be borne by the caller. Should there be a desire for routing through a toll-free number, these costs will increase based on call volume and length. Also, there are no additional costs for calls coming through from a wireless carrier. This assumes that wireless carriers are convinced that they should offer the service, either by directly “pointing” their 511 to the appropriate landline number, or by routing through the local 511 number.

It should be noted that BellSouth does have a 511 tariff in place, but that BellSouth does not cover the entire coverage area in the I-4 corridor. The BellSouth tariff calls for facilities and implementation charges, and for all 511 calls to be routed to a local 7 or 10-digit number in each area it is implemented. No per-call charges apply in this case, however other carriers might not be as generous.

Staffing is assumed to cover three workstations for additional data gathering and data management. It also includes a Director level person, one supervisor and one technical staff person. Though the costs may be understood to offer 24/7 services, the assumption is for live staffing 7 days per week, 13~14 hours per day (with fewer, but later, operating hours on weekends).

Table 5 provides an estimate of the pre-operating costs required.

Table 5
Estimated Pre-Operating Costs

Cost Item	Cost (\$)
Assume 2-3 workstations are required at an operations center and capacity for ~150 phone lines to service 511. Total for hardware	\$450,000
Additional camera and radio equipment for monitoring of emergency response agencies, ~10 cameras deployed (hardware will vary depending on transmission method).	\$250,000
<i>Construction. If this is NOT an existing facility, some level of construction will need to be undertaken. Including permitting demolition and physical construction, costs may vary.</i>	\$20,000
Wiring of facility for telecommunications and networking (assumes NO cost for construction of facility or re-fitting of existing space)	\$5000
Telephone line installation for 150 lines (511) plus 8 lines for operations and administration. (\$100 per line for installation)	\$15,800
Installation of video cameras (not DOT facilities)	\$25,000
Purchase of PBX telephone system	\$2,500
Additional telephone hardware (desk sets)	\$2,000
Additional hardware/software for systems (includes software licenses for IVR/511 system).	\$30,000
Pre-Operating labor costs. Includes training of operations staff, technical labor for install, etc. Assumes 6 month ramp-up time to launch	\$80,000
Facilities (furniture at ~\$1000 per workstation or office)	\$5,000
Office Supplies, Coffee etc.	\$500
Fax/Copier lease (per month)	\$1000
Launch event marketing	\$10,000
Miscellaneous travel costs	\$5,000
Contingency (10%)	\$90,180
Total Pre-Operating costs	\$991,980.00

Table 6 provides an estimate of the monthly operating costs to operate and maintain the ATIS system in the I-4 corridor. These costs would be included in the last 2-3 months of pre-operating costs as well

Table 6
Estimated Monthly Operating Costs

Cost Item	Cost (\$)
Rent (If there is rent, pre-operating costs will also include a security deposit usually equal to 2 months rent) Assume 4 months pre-operating.	\$2,500
Aircraft. Assume one month of trial run flights prior to launch to de-bug radios and training pilot/reporters.	\$18,000
Parking costs – Unknown. Depending on facility and location, there may be charges for staff parking etc.	\$200
Telephone charges for administrative and operations phones (includes outbound local and toll/long distance calls)	\$3,000
511 Telephone line charges. Assume ~\$40 per month per line. Assume that these calls are NOT transferred and that caller is paying the cost of the inbound call (i.e. no toll-free number is accounted for here)	\$6,000
Cell phones/pagers for Director of Operations and supervisor	\$200
Staffing and benefits. Assumes one Director level person, one supervisor, 4 full time operators and two ½ time operators, plus one technical staff person. Also includes ~8 hours per month of ongoing training time	\$27,000
Lease payments on computer, camera and radio equipment (such that might not have been purchased outright)	\$15,000
Internet access charges (assumes at least one T-1 connection through a router)	\$2,000
Additional Miscellaneous General Expenses (Postage, supplies, etc.)	\$200
Total Monthly Operating Costs	\$65,100.00

Based on the pre-operating and monthly operating costs estimates presented in Tables 5 and 6, it is estimated that the annualized cost for deploying and operating ATIS in the I-4 Corridor market will be around \$1,120,000. This annualized cost is based on a three-year contract.

6. CONCLUSIONS AND RECOMMENDATIONS

Based on the market research conducted for the I-4 corridor, the following conclusions and recommendations are presented for the Department consideration:

- There is a basic ITS infrastructure currently in place or programmed for the short term on several key segments of the I-4 corridor.
- Construction activities will be an ongoing endeavor in the I-4 Corridor for many years to come. Providing ATIS services in the corridor will help FDOT meets its responsibilities of providing construction information to the traveling public and improving safety by implementing smart work zone concepts.
- There is enough interest from ISPs in the I-4 corridor to warrant proceeding forward with an Invitation to Negotiate. Interviews with potential ISPs indicate that a combined market approach will work for most, however FDOT may wish to play on the market experience of the respondents to the ITN to determine the best apportioning of the corridor.
- FDOT should expect to pay a major portion of ATIS costs. Based on the pre-operating and monthly operating costs estimates presented in Tables 5 and 6, it is estimated that the annualized cost for a three-year ATIS contract the I-4 Corridor market will be around \$1,120,000.
- As such, Districts 1,5,7,8 and the Central Office should participate in the ITN development, review proposals and assist in negotiations.
- The Department should adopt the proposed business model as the basis for the ITN and to estimate the potential cost to the Department.
- The Department should invite discussions with other transportation operators in the corridor to determine their desires and appropriate level of participation in the ITN process. THEA and OOCEA should specifically targeted for discussion.

In conclusion, it is recommended that the Department proceed forward with forward with an ITN in the I-4 Corridor.